



Emergency food storage for organisations and citizens in New Zealand: Results of optimisation modelling

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Year: 2012
Journal: The New Zealand Medical Journal. 125 (1367): 49-60

Abstract:

AIMS: New Zealand (NZ), is a country subject to a wide range of natural disasters, some of which (e.g., floods and storms) may increase in frequency and severity with the effects of climate change. To improve disaster preparations, we aimed to use scenario development and linear programming to identify the lowest-cost foods for emergency storage. METHODS: We used NZ food price data (e.g., from the Food Price Index) and nutritional data from a NZ food composition database. Different scenarios were modelled in Excel and R along with uncertainty analysis. RESULTS: A collection of low-cost emergency storage foods that meet daily energy requirements for men were identified e.g., at a median purchase cost of NZ\$2.21 per day (equivalent to US\$1.45) (95% simulation interval Euro Surveillance (Bulletin Européen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) NZ\$2.04 to 2.38). In comparison, the cost of such a collection of foods which did not require cooking, was NZ\$3.67 per day. While meeting all nutritional recommendations (and not just energy) is far from essential in a disaster setting, if such nutritionally optimised foods are purchased for storage, then the cost would be higher (NZ\$7.10 per day). Where a zero level of food spoilage was assumed (e.g., storage by a government agency), the cost of purchasing food for storage was as low as NZ\$1.93 per day. CONCLUSIONS: It appears to cost very little to purchase basic emergency foods for storage in the current New Zealand setting. The lists of the foods identified could be considered by organisations who participate in disaster relief (civil defence) but also by citizens.

Source:

<http://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2012/vol-125-no-1367/article-nghiem>

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Food/Water Security

Extreme Weather Event: Flooding

Food/Water Security: Food Access/Distribution

Geographic Feature:

resource focuses on specific type of geography

Climate Change and Human Health Literature Portal

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type:

format or standard characteristic of resource

Research Article

Resilience:

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale:

time period studied

Time Scale Unspecified